CECW-PC 15 February 2006

DOCUMENTATION OF REVIEW
HQUSACE POLICY COMPLIANCE FINDINGS
PORT LIONS, ALASKA,
NAVIGATION IMPROVEMENTS FINAL INTERIM FEASIBILITY REPORT
AND ENVIRONMENTAL ASSESSMENT, OCTOBER 2005

1. BACKGROUND. The City of Port Lions is located on Kodiak Island, approximately 260 air miles southwest of Anchorage. The mooring basin is subject to severe damages from waves from the northeast and southwest. Three detailed harbor designs were evaluated at Port Lions. The recommended plan provides a new rubble-mound breakwater, 1,360 feet in length, located southwest and east of the existing mooring basin. The new breakwater would protect the design fleet from northeast and southwest waves. The new breakwater would not be shore-connected to provide a 150-foot opening for fish passage. This would allow fish to remain in the shallow water near shore and minimize the threat of deep-water predation. Additionally, the width of the near-shore opening at the existing breakwater will be reduced to 30 feet by extending the existing breakwater shoreward. The breakwaters would protect a 10-acre mooring basin. The basin would provide protected moorage for a total of 124 commercial and subsistence vessels ranging in length from 22 to 55 feet. The existing basin depths range from -14 feet mean lower low water (MLLW) near the entrance channel to -8 feet MLLW at the near-shore extent of the basin.

The recommended NED plan has an initial construction cost of $9.8 million (Oct 2004 prices). The annual combined investment and operation & maintenance cost is $0.6 million. With annual benefits of $0.9 million (summarized in **Table 1** below), the resulting net benefits are $0.3 million. The benefit to cost ratio is 1.5 to 1. The cost sharing reflects provisions of the Water Resources Development Act of 1986; non-Federal initial share is 10% of GNF plus reimbursement of 10% of GNF minus LERR credit. The estimated total non-Federal share of the project is $2.8 million, which includes $1.8 million for GNF and $1.0 million for the local service facility float system. The Federal share of the project is $7.0 million. The U.S. House of Representatives Public Works Committee Resolution, for Rivers and Harbors in Alaska, adopted on 2 December 1970 authorized this study. The design vessel is 58 feet long, with a beam of 19 feet and a draft of 6 feet.

Table 1

Summary of Benefits NED Plan

	$1,000	% Total
Reduction in Harvest Cost	$361	40.8%
Preventable Marine Damage	$253	28.6%
Search and Rescue	$73	8.3%
Subsistence	$54	6.1%
Water Taxi Service	$49	5.5%
Harbor of Refuge	$26	2.9%
Local Emergency Cost	$18	2.0%
Damage to Skiffs	$16	1.8%
Large Vessels Set Adrift	$14	1.6%
Lines & Cleats	$9	1.0%
Vessel Damage at Docks	$7	0.8%
Beaching Damage	$4	0.5%
Total	$884	100.0%

2. REVIEW OF REPORT SUBMITTALS. The concerns that resulted from review of the final report are presented below and were resolved by the responses to comments. All of the concerns expressed in the previous Headquarters guidance are resolved by information provided in the Final Feasibility Report and the responses to comments. This final Documentation of Review Findings includes the resolved comments from the Draft Report as the attached Appendix A.

A. **Headquarters Comment:** Incremental Maintenance Dredging. Table 12 of the main report displays annual OMRRR costs for the recommended project. The total includes $6,000 in annual maintenance dredging costs. If the dredging is associated with maintenance of the existing project, these costs should not be charged to the recommended breakwater plan.

District Response: The annual maintenance dredging cost of $6,000 was removed from the cost of the recommended plan.

Headquarters Analysis: The response **has resolved** the concern.

3. EDITORIAL AND INFORMATION.

A. **Headquarters Comment:** Fishing Vessel Fuel Taxes. A reference is made to page 34 of Appendix B Economics. The footnote 41 stated that taxes are excluded from the January to July average price of actual fuel sales at Kodiak for the period January 2000 to July 2001. Taxes should not be excluded from the navigation fuel costs. Taxes are customarily included in the fuel cost prices estimated by IWR for use for inland and

deep-draft navigation economic analyses. Locally constructed costs should be developed in an identical manner. This comment is included for information, no changes are required for this final report.

Headquarters Analysis: No changes are required for this final report, since the comment was for information.

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B. MCACES Cost Estimate. The following comments are provided on the MCACES cost estimate and documentation:

(1) **Headquarters Comment:** Support for Cost Assumptions. The project narrative describing the basis and assumptions used in the development of the estimate is missing. The MCACES estimate did not include a narrative to support the development of costs, assumptions, construction duration, and contingency development. Without a narrative the reviewer has difficulty understanding the basis and assumptions used in the development of the estimate. Also, the narrative would provide the district with a historical basis as the project proceeds and would bring it into conformance with ER 1110-2-1302.

District Response: A narrative of the cost estimate was included in Appendix E of the final report.

Headquarters Analysis: The response **has resolved** the concern.

(2) **Headquarters Comment:** Report Date of Basis for Estimate. A reference is made to the Total Project Cost Summary sheets contained in Appendix E. Page 1 stated the estimate is based on the feasibility report dated 1998 whereas pages 2 and 3 stated the estimate is based on the feasibility report dated Sept 03. The project costs could be understated if the estimated was based on an outdated scope.

District Response: The cost summary sheets of Appendix E erroneously referenced a report date of 1998. This text was revised to reflect the correct draft report date of 2003.

Headquarters Analysis: The response **has resolved** the concern.

(3) **Headquarters Comment:** Outdated Inflation Factors. The information on the Total Project Cost Summary stated a Civil Works Construction Cost Index System (CWCCIS) dated 27 Mar 98 was used for the calculation of the Fully Funded Estimate. The project costs could be understated due to the application of outdated inflation factors. The latest CWCCIS dated 31 March 2004 should be used to update unit prices and project cost features.

District Response: Unit and project costs were updated using the 31 March 2005 Civil Works Construction Cost Index System.

Headquarters Analysis: The response **has resolved** the concern.

C. **Headquarters Comment:** Clarification of Dredging Requirements. Page 39: Clarify the second sentence of paragraph 6.1.3 to explain the contradiction on the need for dredging. "The project does not require dredging." Paragraph 6.6.2 at the bottom of page 41 indicates that the local sponsor may undertake some dredging at a future date as a part of O&M.

District Response: Dredging is not required to construct the recommended plan. Maintenance dredging is expected to be infrequent, if necessary at all, during the life of the project. However, the potential for maintenance dredging does exist. Section 6.6.2 identifies the responsible interests should maintenance dredging be required.

Headquarters Analysis: The response **has resolved** the concern.

D. **Headquarters Comment:** Main Report. Page 41: Paragraph 6.5: the last two bulleted items do not read correctly. One correction might be to change "Construction breakwater. . . " to "Construct breakwater . . ." and "Design and construction breakwater. . ." to "Design and construct breakwater . . ."

District Response: Revised text of the last two bullets to read: “Construct breakwater” and “Design and Construct Breakwater”.

Headquarters Analysis: The response **has resolved** the concern.

E. **Headquarters Comment:** Environmental Assessment. EIS Page 36: Change the portion of the sentence in the second paragraph of section 4.1.2 that reads "adversely effect" to "adversely affect."

District Response: Changed text in second sentence to read: “adversely affect”.

Headquarters Analysis: The response **has resolved** the concern.

F. **Headquarters Comment:** Appendix E, Cost Estimate Summary. Port Lions referred to as “Port Loins” on Cost Summary sheets.

District Response: Changed text on cost summary sheets to read “Port Lions”.

Headquarters Analysis: The response **has resolved** the concern.

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Review Manager

APPENDIX A

CECW-PC 15 February 2006

DOCUMENTATION OF INCORPORATION OF 21 JUNE 2005 POLICY GUIDANCE MEMORANDUM INTO DRAFT FEASIBILITY REPORT AND ENVIRONMENTAL ASSESSMENT PORT LIONS NAVIGATION IMPROVEMENTS PORT LIONS, ALASKA

1. HEADQUARTERS ASSESSMENT OF DRAFT. The assessment documented new concerns that arose from review of information provided with the Draft Feasibility Report. A second purpose is to assess the actions taken by Anchorage District on HQUSACE Policy Guidance Memorandum (PGM) dated May 27, 2005. Three of the 15 PGM concerns were unresolved by the draft report or the initial district comment response. These three items from the PGM included: Comment 6 - Moorage Capacity Limits; Comment 7 - Vessel damage at Docks; and Comment 10 - Financial Analysis. However, subsequent District electronic submissions fully resolved these concerns. The response information and actions taken by the district have fully resolved the other twelve concerns. The headquarters assessment of the responses and actions is shown below.

2. EDITORIAL CONCERNS ON DRAFT FEASIBILITY REPORT. First, the Table of Contents includes page numbers however the document itself is absent page numbers. Secondly, reference is made to paragraph 5.1.2. that summarizes the Environmental Assessment (EA). When describing the threatened Steller's Eider, the text notes that "No eiders were observed..... [by] local hunters and hunting guides..." The juxtaposition of this statement appears like they are hunting threatened species. These editorial items need to be corrected. These editorial concerns were resolved with the inclusion of page numbers in the final feasibility report and the deletion of the reference to hunters.

3. THREE COMMENTS FROM THE PGM RESOLVED BY "E" MAIL. The following comments were not fully resolved by the draft report submittal and the initial district PGM responses. However, subsequent District electronic submissions were provided in response to informal electronic transmissions from HQUSACE. These concerns are now fully resolved.

PGM Comment (6) Moorage Capacity Limits. The final report needs to show a detailed layout of the docks expected to be constructed by the locals after the new breakwater is completed, which includes the placement of the docked boats during a full house. From current report material it is not apparent how 124 fishing vessels can fit into this basin.

District Response: Layout to be provided.

Discussion: District will provide a float layout in the report.

Required Action: Float layout will be shown in the report.

HQUSACE Assessment: The report has been revised to include a float layout for the recommended plan. However, a portion of the float layout appears to extend into the new maneuvering area. The concern **is not resolved.** Clarify if there is sufficient space for the number of floats in the recommended plan.

District Electronic Response 9/15/05: Yes the floats did extend into the maneuvering area on Figure 16. To remedy the situation the last float on Float C was located to Float A where there was sufficient room.

HQUSACE Assessment 9/19/05: The district electronic response **has resolved the concern.**

PGM Comment (7) Vessel Damage at Docks. Reference is made to Economics Appendix B page 5 1. The category Vessel Damage at Docks is described and has a range of values of $59,200 to $177,600 but this benefit category is not listed in the Summary of Benefits Table 19 on page 67. Clarify why this benefit category was not included in the benefit table.

District Response: It was inadvertently omitted. It will be added to the table along with other post AFB modifications. The range of benefits is $59,200 - $177,600. A mid-range value would be $118,400.

Discussion: Response has resolved the concern.

Required Action: District will incorporate the information from the response in the report.

HQUSACE Assessment: The report has been revised to include information on vessel damages at docks. However, the level of damages shown on page 52 of the revised Economics Appendix has materially changed. The revised report shows $6,800 in average annual damages. The concern **is not resolved.** Clarify the basis for the change from a mid-range of $118,000 to $6,800.

District Electronic Response 9/15/05: The benefit range of $59,200 to $177,600 was not annualized. When presented in annual cost over a 50-year evaluation period this range is from $3,400 to $10,300, with an average of $6,800.

HQUSACE Assessment 9/19/05: The district electronic response **has resolved the concern.**

PGM Comment **(10)** Financial Analysis. The financial analysis and the State/local letters of support need to be inserted into Appendix D of the final report.

District Response: Financial Analysis and the State/local letters of support will be inserted into Appendix D of the final Report.

Discussion: Response has resolved the concern.

Required Action: District will incorporate the information from the response in the report.

HQUSACE Assessment: The report has been revised to include the state letter of support. However, the district financial analysis was not included in the report. The concern **is not resolved.**

District Electronic Response 9/15/05: The district furnished electronically a copy of the Assessment of the Sponsor's Financing Capability.

HQUSACE Assessment 9/19/05: The district electronic response **has resolved the concern.**

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4. TWELVE CONCERNS RESOLVED BY REPORT & DISTRICT RESPONSES

PGM Comment (1) Multiplier for Donated Labor. Reference is made to Appendix B Economics pages 44 and 45. The Local Emergency Cost Benefit ($140.9) consists of three parts. The first part is the annual harbor-operating budget for maintenance. Secondly the value of donated labor was estimated at $14.00 per hour. The approximately 3,000 hours would amount to $42,000. The application of an administrative and fringe benefit factor of 2.5 would increase the total amount to $114,500. The NED value of donated labor was determined to be $14.00 due to the fact that local labor could not be hired for less than $14.00 per hour. A labor multiplier of 2.5 was applied to the direct hourly labor cost to include payroll burden, fringe, supervision, overhead, material, and administration. The review team is concerned because the donated labor is short term and no administrative structure was set up to pay or employ donated labor. Documentation for all three parts of this benefit category is lacking.

First, the harbor operating-budget was for maintenance. It is not clear how much is due to wave barrier project preventable damage and normal wear & tear. Secondly, there is not a precedent for using donated labor as a benefit or avoided cost. Furthermore, there is not a clear administrative savings in avoiding the need for donated labor, because there is no payroll. In summary, only the cost of hired direct labor and the cost of donated materials used for local emergency cost can be considered an NED cost.

District Response: In the present condition, the harbor accommodates only 35 small vessels. There is no fuel dock or landside support facility. The harbor is outside of town at an isolated location accessible by one gravel road ending at the harbor. There is no on-duty security staff. Essentially the harbor is self-tending except for emergency events related to lack of wave barrier protection.

There is a part-time harbormaster, however his role is a requirement stemming from the volatile wave climate inside of the harbor. If the harbor enjoyed wave barrier protection and sheltered only the 35 vessels presently using it, a harbormaster would most likely not be a requirement as harbors of that size elsewhere are generally self-tending.

The present practice of moorage customers is to make moorage payments in person at the local city office in Port Lions, not at the harbor. The harbormaster is not responsible for billing or monthly record keeping. There is no utility-equipped office for the harbormaster to use. His primary role is public safety related to emergency situations. During visits to the harbor he monitors storm damage and keeps track of the condition of the harbor making a record of damage to floats and vessels.

When emergency events occur he spreads the word and community volunteers show up. They are not encouraged to do anything however unless the harbor-master is on site to supervise the emergency activity. The harbormaster and a city employee operate skiffs when necessary to move vessels or chase down vessels that have broken loose from the moorage.

Routine financial and administrative oversight of the harbor operation is performed by the city administrative clerk. Cost of the city administrative office is not included in the harbor budget.

The city of Port Lions furnished records of their direct harbor cost for 2000 and 2001. Their $36,800 direct cost budget for 2001 was broken down into thirteen line items, none of which are specifically reserves for "emergency". They furnished the budget detail as a sample of their operating cost with the stipulation that the direct cost budgeted expense needs to be multiplied by a factor of three for a realistic estimate of the all inclusive real annual harbor expense. The overhead factor was reduced to 2.5 based on budget data available from other government operations.

The harbor direct cost budget included $18,100 for the harbormaster; and $18,700 for utilities, supplies, insurance, lights, etc. Approximately $18,700 of the direct cost budget is not related to emergency situations. Of the budgeted direct cost half of it is for routine harbor expenses such as electricity, phone, insurance, supplies etc.
Uncompensated labor is a common component of benefit evaluation. The literature of resource economics is rich on the subject of imputed labor values and shadow pricing studies where actual financial compensation is absent. Even within the Corps uncompensated labor is widely used on a routine basis as a benefit.

For example numerous Corps reports including recreation analysis and fish and wildlife studies are keyed to user-day values derived by various non-market techniques. These benefit evaluations run into the $millions without being based on actual financial compensation. Some Corps related non-market time value studies are prominent in the literature related to the Snake River dam removal issues surrounding juvenile fish migration issues. Other landmark applications are visible in the literature related to the Elwah dam removal.

In the Snake River studies removal of the dams would cause a loss of lake recreation and it was evaluated on the grounds of non-financial losses of user-day values derived from shadow price studies. Application of travel cost models included components of the traveler's time based on opportunity cost. Outside of the Corps but prominent in the literature is the BOR removal of the Elwah dam. The Elwah decision economics pivoted heavily on an analysis using uncompensated time values as a basis for use and non-use values.

Resource economics of public projects consistently bring into play the use of opportunity cost for valuing resources affected by a project. In Corps applications, the classic case involving NED evaluation related to valuing lost time would most likely be a flood damage prevention, or flood damage study wherein transportation routes are interdicted. In such cases the cost of additional travel time to work, or cost of travel for other purposes can be consistently estimated. Policy guidance of the Corps can be traced to IWR analysis gleaned from Thomas and Thompson.

It is quite common in the Corps study of flood damages to calculate the increased cost of travel due to re-routings. One component of the travel time is the uncompensated travelers adversely impacted by the flood event. To the extent such travel time is reduced by solving the flood problem the value of the time is included in the benefit calculation.

The flagship study in support of valuing uncompensated time is Thomas and Thompson (1971). It included value of time saved for work and non-work related trips. Data was collected using a mail-back questionnaire of motorists faced with a choice between a faster toll road and a slower free road. It theorized an "S" shaped time value curve with smaller work related time savings up to 5 minutes being worth $.99 per unit of time, 5 - 15 minutes was valued at $4.99 and over 15 minutes at $8.33.

The Thomas and Thompson study served as the basis for the American Association of State Highway Officials (AASHO) 1977 calculation of the value of time saved as a proportion of income using Thomas and Thompson's median income category. The AASHO endorsement of Thomas and Thompson was later to serve as the basis for values used by the Corps of Engineers.

After Thomas and Thompson was adapted for use by AASHO, the IWR recommendation followed the AASHO lead and adapted the Thomas and Thompson model for use in its policy recommendation, classifying time saving into three time categories; 0-5, minutes 5-15 minutes, over 15 minutes; and also by purpose. IWR recommended the value of time to be estimated using the matrix percentages applied to the before tax family income of the driver; see recommendation in IWR Report 91 - R 12.

Similar labor valuation problems arise in irrigation studies and flood damage analysis where farms are involved. Unpaid family labor is frequently a large component of total farm labor requirements. The P&G clearly instructs valuation of family labor of farmers at market wage equivalents.

Among navigation studies it is common for crew uncompensated crew time saved to be given an imputed value. Such time is viewed as leisure time however even this non-productive, uncompensated time is given an hourly value.

The administrative activity involves the overseeing of the donated labor. The harbor floats are very unstable and move about a great deal during storms. It is a dangerous work environment and the city has the policy that they do not want individuals working there unsupervised. Therefore the harbormaster and at least one other trusted and experienced associate take on a leadership/supervisory role over the donated labor. There is also the need for one or two vessels to assist during the emergency operations, the cost of which is factored into the overhead.

Opportunity cost is different than financial cost. Resource economics embraces the concept of opportunity cost as the basis for economic analysis. Opportunity cost is also the appropriate metric for NED evaluations. Whether a good or service is donated or compensated; the opportunity cost is unaffected.

The concept of NED cost is harmonious with opportunity cost. Essentially one is challenged to identify and account for all of the resource values required for a project. There is frequently a large difference between economic effects measured in terms of economic cost (or opportunity cost) and in terms of monetary cost, or cash flow. The

economic cost or opportunity cost takes into account cost of all resources. For example, it would include capital and hourly equivalents of fixed costs whether or not they are recovered by income. Standardized benefit-cost analysis procedures rely on opportunity cost.

In resource economics, use of financial cost as a surrogate for NED effects could be viewed as an understatement of NED economic effects because cash flow often fails to account for all resource effects.

Use of cash flow instead of opportunity cost would be similar to evaluation of flood damages by counting only the out of pocket cash repair cost, and ignoring the economic losses associated with decline in market value when someone does not actually repair damages incur-red. It would be like evaluating inland navigation while ignoring the capital cost of equipment. It would be like evaluating the cost of rail shipment while ignoring the cost of the train itself; or comparable to evaluation of deep draft navigation by using a rate structure instead of reconstructed cost.

This approach is in contrast to a financial cost, or net income approach both of which involve tracking of transactions. Economists see costs a little differently in the NED context. Economic cost has to do with comparing options not with evaluating a series of transactions so cost is the opportunity that is forgone to use resources in a given way.

Evaluating the cost of the emergency mission by imputed labor cost is actually somewhat of a low estimate of the cost. This is because if one looks at cost of not taking action, the annual damages will exceed the annual cost of the emergency missions whether the labor is valued at financial cost or opportunity cost.

The use of long run unit costs as an estimate of opportunity cost is consistent with P&G (ER 1105-2-100,pg 5-18,para(b)). As such, they are an accounting of beneficial effects equal to the value of goods and services resulting from implementation of the plan. According to EP II 65-21 page 5-9, para (1), as increases in economies stemming from the plan they qualify as NED benefits. This is further supported by EP 1165-2-1, page 12-3 para b. titled NED Benefits, and is consistent with non-Corps literature on the subject. Use of long run costs is also supported by ER 1105-2-100 6-117. B. (1), which specifically lists commercial fishing harvest costs to include cost of ownership, labor, operation, and replacement. The overhead factor adjusts short run costs to a long run equivalent opportunity cost.

Using only the direct financial cost of emergency related harbor operation, with the assumption that the harbormaster position is required because of frequent emergency situations the $140,900 benefit in the report is reduced to $18,100.

The calculation in the report used the full direct cost budget of the harbor at $36,000 when only the cost of the harbormaster position should have been included at $18,1 00. However adding direct and indirect overhead increases this to $45,250.

District Revised Response: Will remove from the report the volunteer portion of the benefits claimed.

Discussion: It is recognized that some aspects of volunteer labor may be valid for determination of benefits. However, a standard evaluation procedure has not been

determined and has been excluded from this report to expedite report completion. Response has resolved the concern.

Required Action: District will revise the report to include only actual expenses for the harbormaster and city employees that can be avoided in the with-project condition.

HQUSACE Assessment: The report has been revised to include only actual expenses. The concern **is resolved.**

PGM Comment (2) Hull Damage - Fiberglass vs. Aluminum. Reference is made to Appendix B Economics pages 46 to 49. The damages to large vessels set adrift were based upon a fiberglass hull. However, it was pointed out on page 23 of the Economics appendix B. "There is a trend to use aluminum, which is proving to be a rugged, long lasting, and low maintenance material even compared to fiberglass." Nevertheless, on page 49 of Appendix B Economics, the annual loss calculations uses damages related to fiberglass hulls. Provide the proportion of the hulls that are fiberglass and weight the damages by the proportion of the fleet that uses fiberglass or aluminum for a hull.

District Response: The CFEC vessel database used for this report indicated that out of a 352 vessel sample (two randomly selected blocks out of over 6,000 listings) there were 32% aluminum and 38% fiberglass = 70% either aluminum or fiberglass. The rest were steel and wood which is much more common for larger vessels, especially those above 58'. The Port Lions fleet is anticipated to not exceed 58'. It was also noted that vessels under about 26' are generally aluminum.

Of the new vessel replacements since 1990 about 2/3 were aluminum and 1/3 fiberglass. Practically all of the new vessels since 1990 are under 30'with a preponderance under 26'. This indicates that replacements of the shorter life skiffs are trending toward aluminum. The larger vessels over 32' (around 80% being 30 - 70 years of age) are usually rebuilt rather than being replaced. Aluminum hulls are uncommon among the larger vessels.

The report actually approximated a balance between aluminum and fiberglass in the damage calculation. This is implicit in the choice of the damage ranges in the table. It combined the lowest and highest damage factors of the two materials to create a range for each class of events thus representing a combination of aluminum and fiberglass for each damage interval. It did not prorate the damage factors to adjust for fiberglass or aluminum beyond this balance because if one assumes new vessels will be 2/3 aluminum and smaller vessels last 30 years the shift to aluminum will take place at around I to 3 vessels per year, around 2% annually. The damage factors between fiberglass and aluminum differ by up to about I 0% in most cases. Adjusting for the fleet balance to account for a 2% shift annually in a IO% damage differential amounts to around .2% per year; an amount well beyond the acceptable level of precision. With benefits of $13,700 we are talking about adjusting for $27.00.

However, the comment helped identify an oversight in the table and another in the text. The report text inappropriately identifies the table as being for fiberglass hulls when it represents the combined damage range for both aluminum and fiberglass. This will be corrected. Also the review comment led to identification of an incorrect value in the

bottom line of the table, which incorrectly noted the damage range as being 40% - I 00% when it should be 3 0% - I 00%. This will be corrected as well.

Discussion: Response has resolved the concern.

Required Action: District will incorporate the information from the response in the report.

HQUSACE Assessment: The report has been revised to include the correct information on hull repair. The concern **is resolved.**

PGM Comment (3) Wind Direction at Kodiak vs. Port Lions. There is a concern that the wind and fetch conditions for Kodiak and Port Lions are different and Kodiak winds are not directly applicable to Port Lions. Appendix A Hydraulic Analysis on page 12 provides an annual wind summary for Kodiak. The directions are (NW) (@W) and (ENE) (ESE). The wind direction at Port Lions appears to be different. For example, reference is made to page I of Appendix 2 Final U.S. Fish and Wildlife Service Coordination Report. "According to Port Lions residents, the severe storms that have caused damage to the harbor usually occur during fall and winter months with winds coming from the northeast. The wave climate in the Port Lions area is characterized as being oriented in one of two directions depending on wind direction: either from the northeast, or from the south." Discuss how local conditions at Port Lions match the orientation of the recommended breakwaters.

District Response: Kodiak wind data (Appendix A, figures 1 - 13) was to verify the regional monthly wind patterns. Wind and wave conditions specific to Port Lions were used as the bases for the design wave. See Appendix A, Section 3 text, Table l3, and Figures A-14 and A-15 for detailed information on the design wave heights, periods, and directions used for design of the alternatives.

Discussion: Response has resolved the concern.

Required Action: District will incorporate the information from the response in the report.

HQUSACE Assessment: The concern **is resolved.** Wind and wave conditions specific to Port Lions were used as the bases for the design wave.

PGM **Comment (4)** Incremental Role of Recommended Plan Features. It is not clear what share of damages would be prevented by the new proposed breakwater and the two extensions to the two existing breakwaters. The previous breakwaters built by the Corps of Engineers in 1981 did not prevent damages from occurring. Reference is made to page 24 of Appendix a Hydraulic Analysis. 'The existing project consists of a single detached 725-foot long rubblemound breakwater, an attached 170-foot long rubblemound stub breakwater, and an armored staging area adjacent to the harbor. A breach was left open between the breakwaters to facilitate circulation in the harbor. The recommended plan consists of a single rubblemound breakwater 1,360-feet in length that would protect the basin from northeast and southwest waves. The breakwater would be located landward of the existing breakwater and wrap around the deepwater side of the mooring basin. The

existing breach opening would be reduced by extending the existing breakwater 40-feet shoreward and extending the existing stub breakwater 75-feet resulting in a breach 30-feet wide. The report indicates that a significant portion of the damages is caused by the existing breakwater breaches. For example, the Summary page in front of report states, "The mooring basin is subject to severe damages and undesirable wave conditions from northeast waves entering the basin through the near-shore breach and around the deep-water end of the main breakwater. Damages are also caused by smaller, locally generated waves from the southwest." The role of the segments in preventing damaging waves is needed to clarify what proportion of existing damages will be prevented by each of the three recommended features.

District Response: Essentially what we do is to utilize established performance constraints for all of the alternative harbor plans under study and then put together several different sized plans that meet the performance constraints (i.e. conditions inside of the harbor not to exceed 1'wave activity, specific environmental avoidance, harbor circulation requirements etc.). These performance constraints are generally within the engineering purview of H&H. They are sometimes referred to among planners as "design criteria". When any alternative plan is developed to the point of meeting the design criteria there is no incremental benefit for further design refinements. It is next to impossible to sort out the elements of a small boat harbor breakwater to make a definitive statement about how effective a particular part might be. The whole plan is needed to do the job in the sense of satisfying the performance constraints.

After we satisfy ourselves that the various alternatives meet the performance constraints; then we do the plan selection based on cost effectiveness. This means choosing the one that is least cost but meets the planning needs/constraints being careful to compare alternative plans of similar size. Plans of identical moorage capacity will have identical benefits. Therefore the result is that we select based on cost effectiveness. There is no incremental net benefit for adding breakwater sections to a small boat harbor because all of them are needed to earn the project benefits, which are based on achievement of the design criteria.

Damages to the existing float system appear to occur from both the nearshore gap for fish passage and waves entering the harbor around the outer end of the existing breakwater. It is not possible to identify the exact damage caused from each source because the damages overlap and occur concurrently during each storm event. The ideal system would incorporate the wave height versus damage analysis and the impact of probable error into an economic solution for harbor design. However, the data for such a solution has never been obtained, so this ideal is not achievable. Without a way to evaluate the incremental damages, it is not possible to incrementally evaluate each breakwater segment. Incremental evaluation was limited to selection of the optimum size and depth of the harbor.
Discussion: Response has resolved the concern.

Required Action: District will incorporate the information from the response in the report.

HQUSACE Assessment: The revision to the report has **resolved the concern.**

PGM Comment (5) Associated Costs for Expansion Berths. Since the report points out that 100 berths have been built, it is not clear if the associated costs of the 25 expansion births been included in the analysis. The Economics Appendix on page 13 points out, that "The harbor was originally scaled to provide moorage for 100 vessels with planned expansion to124. In 1984-84 Alaska department of Transportation and Public Facilities placed concrete mooring floats that provided 100 slips. Per paragraph 6.1.3 of main report, the existing float system would be repaired and/or replaced as necessary to accommodate the design fleet of 124 vessels. Provide documentation, that the incremental cost of the 25 expansion berths has been included in the project costs.

District Response: Cost estimate to be checked.

Discussion: Cost implications for the float layout discussed in comment 6 will be presented. Required Action: District will ensure all costs are accounted for in the report.

HQUSACE Assessment: The report has been revised. The concern **is resolved.**

PGM Comment (8) Price Level. The summary page of the main report points out, "To compute net benefits and benefit to cost ratio the project cost was deescalated to a 2003 price level." However, ER I 1 05-2-1 00 dated 22 April 2000 page 2-1 1 requires that, "The general level of prices for inputs and outputs prevailing during or immediately preceding the period of planning shall be used for the entire period of analysis. Project benefits and costs must be compared at a common point in time and both must be updated periodically". The final feasibility report must have must have the most recent price level in order that the Secretary of Army can forward the latest benefit and cost levels to the Congress for authorization of the project.

District Response: Active planning took place between 2001 and 2004. The economic analysis was assembled for the AFB during 2003 - 2004 and is intended to represent a 2004 price level.

Discussion: District will make current adjustments to the price level of the benefits at the time the report is completed. The District anticipates a completed feasibility report in calendar year 2005 with a price level of October 2004.

Required Action: Benefits and costs will be on current price level.

HQUSACE Assessment: The report has been revised to update the price level to October 2004. The concern **is resolved.**

PGM Comment (9) FY 2005 Discount Rate. Reference is made to Economic Guidance Memo #05-04. Federal Discount Rate FY 2005. The Project Evaluation and Formulation Rate (Discount Rate) for FY 2005 is 5-3/8 %. The computed rate is effective as of I October of each year.

District Response: Concur in 5-3/8% today. The benefit analysis in the Economic Analysis Appendix is consistent with 5 3/8%.

Discussion: Response has resolved the concern.

Required Action: District will incorporate the information from the response in the report.

HQUSACE Assessment: The report has been revised to update the interest rate to the FY 2005 discount rate of 5 3/8%. The concern **is resolved.**

PGM Comment (1 1) GNF not NED. Change all the references "NED and non-NED features" to "GNF and non-GNF features" All elements of the plan are part of the NED development plan. Therefore, some are cost shared (GNF) and some are non-Federal responsibilities (non-GNF). NED is used to describe the plan with the highest net benefits and not specific features.

District Response: Concur.

Discussion: Response has resolved the concern.

Required Action: District will incorporate the information from the response in the report.

HQUSACE Assessment: The report has been revised. The concern **is resolved.**

PGM Comment (12) Reduction in Harvest Costs. The report uses a title called expanded moorage capacity on page 52 of Appendix B Economics. Since the benefit is from a reduction in harvest cost due to closer location to the fishing grounds. An improved title would provide a better indication of the benefit source. Change the title to (Reduction in Harvest Costs - Closer Location to Fishing Grounds).

District Response: Concur.

Discussion: Response has resolved the concern.

Required Action: District will incorporate the information from the response in the report.

HQUSACE Assessment: The report has been revised. The concern **is resolved.**

PGM Comment (13) Water Taxi Service. The report uses the title transportation savings on Appendix B page 55. The transportation savings is derived from a reliable water taxi service. The title should reflect the source of benefits.

District Response: Concur.

Discussion: Response has resolved the concern.

Required Action: District will incorporate the information from the response in the report. HQUSACE Assessment: The report has been revised. The concern **is resolved.**

PGM Comment (14) Certificate of Legal Review. Please note that the package submitting the Final Feasibility Report must include the certificate of legal review from the District legal office.

District Response: Concur.

Discussion: Response has resolved the concern.

Required Action: District will incorporate the information from the response in the report.

HQUSACE Assessment: The draft report included a certificate of legal review. The concern **is resolved.**

PGM Comment (15) Items of Local Cooperation. The items of local cooperation, third page of Section 7, please make the following changes:

a. Delete present paragraph 0. and substitute the following:

Comply with all applicable Federal and State laws and regulations, including, but not limited to: Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d) and Department of Defense Directive 5500.11 issued pursuant thereto; Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army"; and all applicable Federal labor standards requirements including, but not limited to, 40 U.S.C. 3141-3148 and 40 U.S.C. 3701-3708 (revising, codifying and enacting without substantive change the provisions of the Davis-Bacon Act (formerly 40 U.S.C. 276a et seq.), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 et seq.) and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c)).

District Response: Concur.

Discussion: Response has resolved the concern.

Required Action: District will incorporate the information from the response in the report.

HQUSACE Assessment: The report has been revised. The concern **is resolved.**

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b. In paragraph P., delete the words "mitigation and " in the first line and insert the word "archeological" so that the phrase reads: "costs of archeological data recovery.

District Response: Concur.

Discussion: Response has resolved the concern.

Required Action: District will incorporate the information from the response in the report.

HQUSACE Assessment: The report has been revised. The concern **is resolved.**

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c. Add new paragraph S. as follows:

Comply with Section 221 of Public Law 91-61 1, Flood Control Act of 1970, as amended (42 U.S.C. 1962d-5b), and Section 101 of the Water Resources Development Act of 1986, Public Law 99-662, as amended (33 U.S.C. 221 1), which require that the Secretary of the Army not commence construction of the project, or separable element thereof, until the non-Federal sponsor enters into a written agreement to furnish its required cooperation for the project or separable element.

District Response: Concur.

Discussion: Response has resolved the concern.

Required Action: District will incorporate the information from the response in the report.

HQUSACE Assessment: The report has been revised. The concern **is resolved.**

/S/

Robert M. McIntyre

Review Manager